

6DQ6-A—12DQ6-A—17DQ6-A

BEAM PENTODE

FOR TV HORIZONTAL-DEFLECTION AMPLIFIER APPLICATIONS

DESCRIPTION AND RATING

The 6DQ6-A is a beam-power pentode primarily designed for use as the horizontal-deflection amplifier in television receivers. Its high zero-bias plate current at low plate and screen voltages makes the tube well suited for use in receivers which operate at low plate-supply voltages.

Except for heater ratings, the 12DQ6-A and 17DQ6-A are identical to the 6DQ6-A. In addition, they incorporate a controlled heater warm-up characteristic which makes them especially suited for use in television receivers that employ series-connected heaters.

GENERAL

ELECTRICAL

Cathode—Coated Unipotential	6DQ6-A	12DQ6-A	17DQ6-A	
Heater Voltage, AC or DC	6.3	12.6	16.8	Volts
Heater Current	1.2	0.6	0.45	Amperes
Heater Warm-up Time*	..	11	11	Seconds

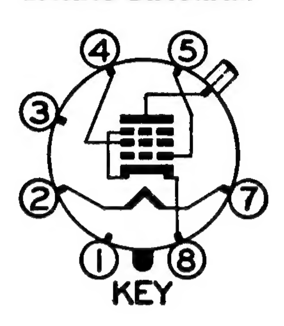
Direct Interelectrode Capacitances, approximate†

Grid-Number 1 to Plate	0.55	μμf
Input	15	μμf
Output	7.0	μμf

MECHANICAL

Mounting Position—Any
Envelope—T-12, Glass
Base—B7-119, Short Medium-Shell Octal 7-Pin
Top Cap—C1-3, Skirted Miniature

BASING DIAGRAM

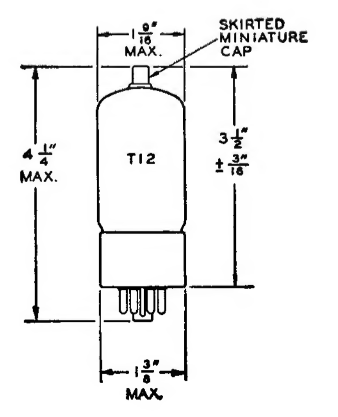


RETMA 6AM

TERMINAL CONNECTIONS

Pin 1—No Connection
Pin 2—Heater
Pin 3—No Connection
Pin 4—Grid Number 2 (Screen)
Pin 5—Grid Number 1
Pin 7—Heater
Pin 8—Cathode and Beam Plates
Cap—Plate

PHYSICAL DIMENSIONS





MAXIMUM RATINGS

HORIZONTAL-DEFLECTION AMPLIFIER SERVICE‡
DESIGN-CENTER VALUES UNLESS OTHERWISE INDICATED

Rating	Value	Unit
DC Plate-Supply Voltage (Boost+DC Power Supply)	700	Volts
Peak Positive Pulse Plate Voltage	6000§	Volts
Peak Negative Pulse Plate Voltage	1375	Volts
Screen Voltage	200	Volts
Negative DC Grid-Number 1 Voltage	50	Volts
Peak Negative Grid-Number 1 Voltage	300	Volts
Plate Dissipation△	15	Watts
Screen Dissipation	3.0	Watts
DC Cathode Current	140	Milliamperes
Peak Cathode Current	440	Milliamperes
Heater-Cathode Voltage		
Heater Positive with Respect to Cathode		
DC Component	100	Volts
Total DC and Peak	200	Volts
Heater Negative with Respect to Cathode		
Total DC and Peak	200	Volts
Grid-Number 1 Circuit Resistance		
With Grid-Leak Bias	1.0	Megohms
Bulb Temperature at Hottest Point	220	C

CHARACTERISTICS AND TYPICAL OPERATION

AVERAGE CHARACTERISTICS

Characteristic			Unit
Plate Voltage	60	250	Volts
Screen Voltage	150	150	Volts
Grid-Number 1 voltage	0¶	−22.5	Volts
Plate Resistance, approximate	..	20000	Ohms
Transconductance	..	6600	Micromhos
Plate Current	300	75	Milliamperes
Screen Current	27	2.4	Milliamperes
Grid-Number 1 Voltage, approximate Ib=1.0 Milliampere	..	−46	Volts
Triode Amplification Factor♦	..	4.1	

* The time required for the voltage across the heater to reach 80 percent of its rated value after applying 4 times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to 3 times the rated heater voltage divided by the rated heater current.

† Without external shield.

‡ For operation in a 525-line, 30-frame television system as described in "Standards of Good Engineering Practice Concerning Television Broadcast Stations," Federal Communications Commission. The duty cycle of the voltage pulse must not exceed 15 percent of one scanning cycle.

§ Value given is to be considered as an Absolute Maximum Rating. In this case, the combined effect of supply voltage variation, manufacturing variation including components in the equipment, and adjustment of equipment controls should not cause the rated value to be exceeded.

△ In stages operating with grid-leak bias, an adequate cathode-bias resistor or other suitable means is required to protect the tube in the absence of excitation.

¶ Applied for short interval (2 seconds maximum) so as not to damage tube.

♦ Triode connection (screen tied to plate) with Eb = Ec2 = 150 volts, and Ec1 = −22.5 volts.

AVERAGE PLATE CHARACTERISTICS

E_f = RATED VALUE
E_{c1} = 0 VOLTS

I_b @ E_{c2} = 175 VOLTS
150
125
100
75
50

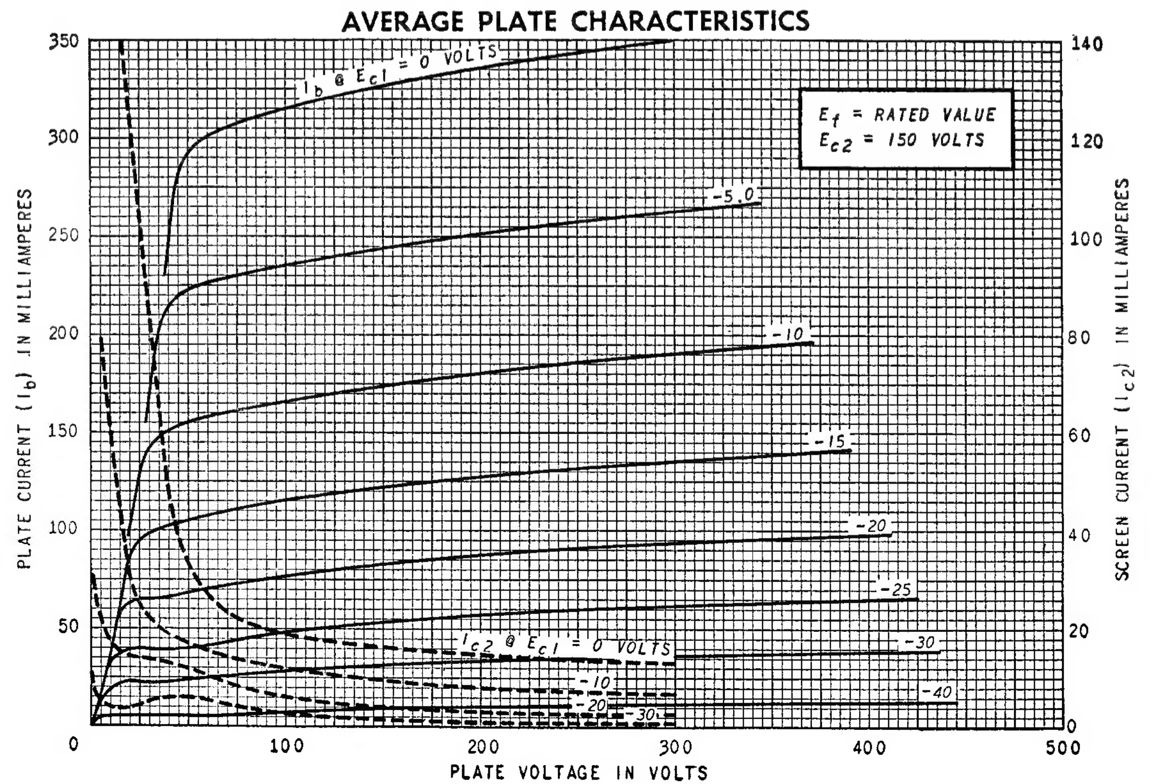
I_{c2} @ E_{c2} = 175 VOLTS
150
125
100
75
50

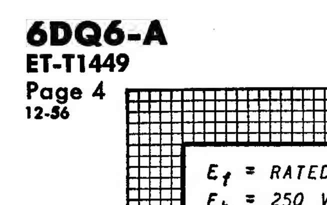
PLATE CURRENT (I_b) IN MILLIAMPERES
0 100 200 300 400 500

SCREEN CURRENT (I_{c2}) IN MILLIAMPERES
0 20 40 60 80 100

PLATE VOLTAGE IN VOLTS
0 100 200 300 400 500

AVERAGE PLATE CHARACTERISTICS





AVERAGE TRANSFER CHARACTERISTICS

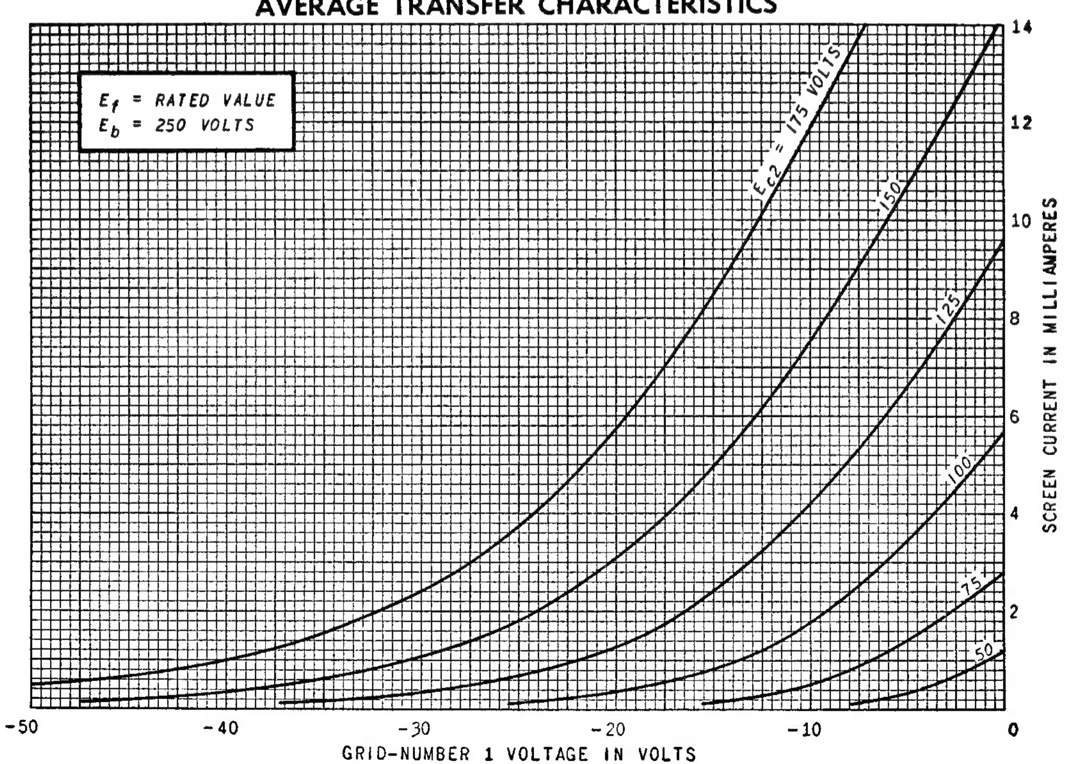
E_f = RATED VALUE
E_b = 250 VOLTS

E_{c2} = 175 VOLTS, 150, 125, 100, 75, 50

PLATE CURRENT IN MILLIAMPERES: 50, 100, 150, 200, 250, 300, 350

GRID-NUMBER 1 VOLTAGE IN VOLTS: −50, −40, −30, −20, −10, 0

AVERAGE TRANSFER CHARACTERISTICS



ELECTRONIC COMPONENTS DIVISION



Schenectady 5, N. Y.

PRINTED IN U.S.A.